



(19)

---

## Europäisches Patentamt

European Patent Office

## Office européen des brevets



(11)

EP 0 694 456 A3

(12)

## EUROPEAN PATENT APPLICATION

(88) Date of publication A3:  
01.05.1996 Bulletin 1996/18

(51) Int Cl.<sup>6</sup>: **B60S 1/08**

(43) Date of publication A2:  
31.01.1996 Bulletin 1996/05

(21) Application number: 95305311.3

(22) Date of filing: 27.07.1995

(84) Designated Contracting States:  
**DE ES FR GB IT NL SE**

(30) Priority: 29.07.1994 US 283035

(71) Applicant: **LUCAS INDUSTRIES, INC.**  
**Reston, Virginia 22091-4399 (US)**

(72) Inventors:

- **Zettler, Gerard J.**  
Winona, Minnesota 55987 (US)

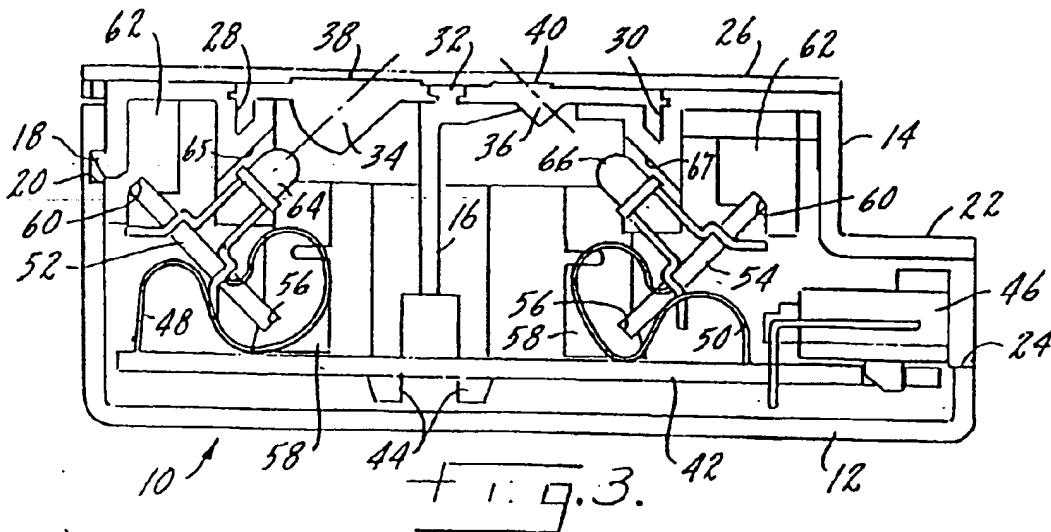
- **Niver, Michael A.**  
LaCrosse, Wisconsin, 54650 (US)

(74) Representative: **Spencer, Michael David, Dr. et al**  
**Bromhead & Co.,**  
**19 Buckingham Street**  
**London WC2N 6EF (GB)**

**(54) Moisture activated wiper sensor**

(57) A moisture activated wiper sensor has all necessary electronic and optical components for detecting moisture and performing signal processing in a single module (10) which mounts to a vehicle windshield. The packaging of the optical components and associated electronic circuitry in an acceptably small housing (10) is achieved by use of insert-molded lenses (34) and in-

frared emitters and detectors (36) mounted on separate printed circuit boards called wing boards. Wing board supports molded into the housing assure proper orientation of the wing boards relative to the lenses (34,36). Flexible cables (48,50) connect the wing boards to a main circuit board.





European Patent  
Office

## EUROPEAN SEARCH REPORT

Application Number  
EP 95 30 5311

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.6)						
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim							
A	EP-A-0 461 424 (BOSCH GMBH ROBERT) * column 2, line 49 - column 4, line 51 * * column 5, line 39 - column 6, line 8; figures 1,3 *	1,10	B60S1/08						
A	EP-A-0 412 653 (DONNELLY CORP) * abstract; figure 1 *	1,10							
A	WO-A-94 15819 (BOSCH GMBH ROBERT ;SEILER HARTMUT (DE); PIENTKA RAINER (DE); FEDTE) * page 5, last paragraph - page 6, paragraph 1; figure 1 *	1,10							
A	WO-A-93 24950 (LIBBEY OWENS FORD CO) * abstract; figures 1-4 *	1,10							
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)						
			B60S						
<p>The present search report has been drawn up for all claims</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Place of search</td> <td style="width: 33%;">Date of completion of the search</td> <td style="width: 34%;">Examiner</td> </tr> <tr> <td>BERLIN</td> <td>19 February 1996</td> <td>Blurton, M</td> </tr> </table>				Place of search	Date of completion of the search	Examiner	BERLIN	19 February 1996	Blurton, M
Place of search	Date of completion of the search	Examiner							
BERLIN	19 February 1996	Blurton, M							
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document							
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document									